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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/746,744	12/22/2000	Steven A. Rogers	CETA-001XX	6878
207	7590	05/20/2004	EXAMINER	
WEINGARTEN, SCHURGIN, GAGNEBIN & LEOVICI LLP			SCHEIBEL, ROBERT C	
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BOSTON, MA 02109			PAPER NUMBER	

2666  
13  
DATE MAILED: 05/20/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/746,744

Applicant(s)

ROGERS, STEVEN A.

Examiner

Robert C. Scheibel

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 22 December 2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10, 12-21 and 25-30 is/are rejected.
- 7) ☒ Claim(s) 11 and 22-24 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 December 2000 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 4-9, 11-12.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Drawings***

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference characters "66" and "68" in Figure 1 have been used to designate both the latch and control pin (center of figure) and the I/O for the switch management CPU (lower left of figure). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

### ***Specification***

2. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

### ***Claim Objections***

3. Claim 26 is objected to because of the following informalities: "plurality of interface port" on lines 2-3 should be "plurality of interface ports". Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims **27, 29 and 30** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim **27** recites the limitation "said master clock" in line 2. There is insufficient antecedent basis for this limitation in the claim. This rejection can be overcome by changing the above limitation to "said master clock system".

Claim **29** recites the limitation "the method" in line 1. There is insufficient antecedent basis for this limitation in the claim. Claim **30** recites the limitation "the method" in line 1. There is insufficient antecedent basis for this limitation in the claim. The rejections under 35 U.S.C. 102 (e) below assume that this rejection will be overcome by changing claims 29 and 30 to be dependent on claim 28.

***Claim Rejections - 35 USC § 102***

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

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7. Claims **1-10, 12-21, and 25-30** are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent 6,038,230 to Ofek.

Regarding claims **1 and 12**, Ofek discloses the step/control logic for receiving packet arrival time information at a switch in lines 50-59 of column 8 and lines 6-7 of column 9. The virtual pipe is the packet flow with which the arrival time information (time of arrival and TFD) is associated. (The TFD is first described in lines 59-67 of column 9.) The step/control logic for receiving forwarding information associated with the packet flow is disclosed in lines 8-13 of column 8. The step/control logic for receiving said packet at said arrival time is disclosed throughout Ofek, for example, the packet received at 31C of Figure 19 and described in step 35-02 of Figure 20. The step/control logic for forwarding said packet based on the packet arrival time in accordance with the forwarding information is disclosed in lines 35-38 of column 15 and lines 23-27 of column 10.

Regarding claims **2 and 13**, Ofek discloses the step/control logic for receiving packet transmission time information in lines 50-59 of column 8 and in the TFD (first described in lines 59-67 of column 9). The limitation that the forwarding of said packet includes transmitting said packet at said packet transmission time is disclosed in lines 39-43 of column 16.

Regarding claims **3 and 14**, the step/control logic for associating the packet arrival time with a first port is disclosed in lines 6-7 of column 9. The limitation that said receiving is at this first port is clear from this same passage (lines 6-7 of column 9) in the context of the preceding paragraph (lines 1-5 of column 9).

Regarding claims **4 and 15**, the step/control logic of associating said packet transmission time information with a second port is disclosed in lines 36-44 of column 16 and Figure 23. The scheduling controller 45 associates each of the data packets with a forwarding time out of the output port. As there is one scheduling controller for each output port, it is clear that this forwarding time out is associated with the output port. Further, since this second port is an output port and the serial transmitter transmits the packets as directed by the scheduling controller, this passage also discloses the limitation that the transmitting of the packet is at this second (output) port.

Regarding claims **5 and 16**, Ofek discloses the limitation that the packet flow is associated with a real-time application in lines 62-65 of column 4. Ofek discloses the limitation of receiving another packet associated with a non-real-time application in the best effort data packets described in lines 15-22 of column 17. Ofek discloses the limitation of delaying the transmission of the non-real-time packet in order to perform transmitting of the packet associated with the real-time application in lines 20-22 of column 17. The best effort packets are not transmitted until all the scheduled (real-time) packets are transmitted; this will result in a delay of the non-real-time packets while the queued real-time packets are being transmitted.

Regarding claims **6 and 17**, Ofek discloses the limitation that the receiving of the non-real-time packet occurs prior to the receiving of the real-time packet in Figure 25. This flow chart shows that according to the method of Ofek, the real-time data packets will be transmitted (block 45-14) until there are not more left in the queue. It is clear that if a non-real-time packet arrives and is queued (in the B-E buffer) and time t1 and there

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are real-time packets to transmit, it will not be transmitted. If another real-time packet arrives at a later time  $t_2$ , but before the real-time buffer has been emptied, it will be transmitted prior to the non-real-time packet received at time  $t_1$ .

Regarding claims **7 and 18**, the step/control logic for receiving a reference packet is disclosed in the UTC time signal of lines 47-54 of column 9. Lines 32-34 of column 4 disclose the step/control logic for determining a schedule interval start time in response to the reference time. The periodic time intervals are defined by start and end times, the former disclosing the schedule interval start time. The step/control logic for determining the packet arrival time based on the packet arrival time information and the schedule interval start time is disclosed in lines 49-60 of column 15 which describes how the time of arrival (TOA) is computed based on the TFD (time arrival information) and the common time reference (on which the time intervals are defined.)

Regarding claims **8 and 19**, the limitation that the packet arrival time information includes a packet flow offset value and wherein the determining of packet arrival time includes adding the packet flow offset value to the schedule interval start time is disclosed in lines 49-60 of column 15. Dconst is the offset value.

Regarding claims **9 and 20**, the step/control logic for receiving a reference packet is disclosed in the UTC time signal of lines 47-54 of column 9. Lines 32-34 of column 4 disclose the step/control logic for determining a schedule interval start time in response to the reference time. The periodic time intervals are defined by start and end times, the former disclosing the schedule interval start time. The step/control logic for

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determining the packet transmission time based on the packet transmission time information and the schedule interval start time is disclosed in lines 42-44 of column 16.

Regarding claims **10 and 21**, the limitation of the packet transmission time information including a packet flow offset is disclosed by the queuing of the packet in the output port queue (step 3 of element 35-04 of Figure 20). The relative placement in the queue serves as an offset into the respective pre-defined time frame such that the packet is transmitted a relative time into the pre-defined time frame based on its relative depth in the queue.

Regarding claims **25 and 28**, the GPS Time Receiver is the master clock system and discloses the determining step. It generates the common time reference 002 as indicated in Figure 14. This master clock system is operative to determine the beginning of a schedule interval (the predefined time frames) as indicated in lines 50-55 of column 8. The schedule information and storing step are disclosed in the first and second predetermined time frames of lines 55-59 of column 8; the TFD is also part of the scheduling information. The plurality of interface ports are disclosed by the input ports 30 and output ports 40 of Figure 14. The transmit and receive control logic are anticipated by the routing controller 35 of Figure 18 and the scheduling controller and transmit buffer 45 of Figure 23. This transmit and receive control logic is responsive to the master clock system as shown by the common time reference signal 002 in figures 18 and 23. The control logic is responsive to the scheduling information as to the scheduling information as indicated in lines 6-17 of column 9. The forwarding time of Ofek is the transmission time of the present application.



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Regarding claim **26 and 29**, the limitation that the receive control logic is operable to determine a reception time of a packet associated with a packet flow is disclosed in the determination of the time of arrival as described in Figure 20 and lines 54-60 of column 15. The reception time offset is the Dconst value described in the above-cited passage.

Regarding claim **27 and 30**, the limitation that the master clock system is responsive to an external clock reference is disclosed in lines 4-7 of column 8 and in lines 47-54 of column 9. The UTC time signal is the heartbeat packet.

### ***Allowable Subject Matter***

8. Claims **11 and 22-24** are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

### ***Conclusion***

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Patent 5,557,608 to Calvignac et al discloses a method where non-real-time traffic is delayed (and pre-empted) to give priority to real-time traffic.

U.S. Patent 6,614,797 to Hippelainen and U.S. Patent 6,570,873 to Isoyama et al both disclose methods of packet switching traffic such that delay variance is minimized.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert C. Scheibel whose telephone number is 703-305-9062. The examiner can normally be reached on 6:30-3:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Seema S. Rao can be reached on 703-308-5463. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

*RC S 5-12-04*

Robert C. Scheibel  
Examiner  
Art Unit 2666

*Seema S. Rao*  
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